



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

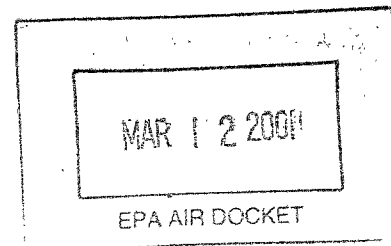
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OFFICE OF  
AIR AND RADIATION

Mr. Peter Chant  
2470 No. 1 Side Road  
Burlington, Ontario  
Canada  
L7R-3X4



Dear Mr. Chant,

Thank you for presenting the results of your test programs on the impacts of Shell's Vektron 3000 class of additives on vehicle performance and emissions to my staff at EPA's Ann Arbor laboratory on April 23, 1996. I commend your investigation into ways to mitigate the effects of performance deterioration as vehicles age, particularly to the extent that the proposed methods exceed the federal requirements for the use of detergent additives.

The test programs Shell has carried out thus far, as described in the April presentation and in the recent SAE article (SAE 961098), provide an indication of the types of benefits that might be experienced from regular use of Vektron 3000 additives. These data suggest that, on average, Vektron 3000 has the potential to reduce the octane requirement increases associated with mileage accumulation and to have a positive impact on deposit formation and NOx emissions. Despite these promising results, however, there does not appear to be a means for adequately quantifying the overall air quality impacts of the use of this additive on the basis of the data we have received to date. Our understanding of the relationships between octane requirements, deposits, and emissions is far from complete, though your test programs are helpful.

In addition, we have a number of concerns regarding the appropriateness of generating NOx reduction credits through the use of detergent additives in excess of the mandatory requirements. Of particular concern is the lack of a well-defined relationship between the detergent's ability to control combustion chamber deposits (CCD) and other engine and fuel

supply system deposits, and reductions in NOx emissions which may be experienced. It is our opinion that to protect the environment, emission reduction credits must be generated in a way that is quantifiable, surplus, and sustainable. The work that Shell performed, while indicating that CCD and perhaps even intake valve deposits (at the levels permitted under EPA's regulatory program) tend to increase NOx emissions, is not sufficient to satisfy all of these criteria. Uncertainties regarding the quantification of the emissions impacts of CCD remain, particularly with respect to the effects of vehicle technology, test cycle, base fuel composition, and other testing variables. There are also unresolved difficulties in establishing a baseline level of deposit control against which surplus benefits would be measured, since it is unclear how a specific additive would be selected as a benchmark. In addition, competitive pressures may have caused many oil companies to market gasoline with deposit control performance beyond that mandated by EPA, leading to further questions regarding the appropriate baseline to use in determining the magnitude of potential surplus emissions benefits. Since deposit effects are related to mileage accumulation, questions arise regarding how the sustained performance would be demonstrated, given that motorists will not consistently use the same marketer's fuel and the marketer's base fuel composition can vary.

In the recently promulgated gasoline detergent certification rule, EPA noted that further study might help to resolve controversial issues which still remain about the causes, effects, and accurate evaluation of CCD. Work underway under the auspices of the Coordinating Research Council (CRC) and other industry activity is expected to help elucidate the potential need for and environmental benefits of CCD control, and to help build industry consensus regarding the appropriate testing protocol for evaluating CCD issues. EPA will continue to evaluate the issue of whether additional deposit control requirements are warranted and whether it is possible to develop a protocol for establishing emissions credits for the use of detergent additives which go beyond EPA required performance levels. Before further considering emissions credits for detergent additives, it may be necessary for EPA to receive additional input from experts in industry, academia, and other government organizations, on the formation of CCD, the correlation of CCD and emissions, and appropriate ways to evaluate the benefits of the use of additives to control these deposits. This is also true regarding evaluation of the

potential benefits for more stringent control of engine and fuel system deposits beyond that already specified by EPA requirements.

Thank you for sharing the results of your test program with my staff. We look forward to receiving any additional data that you may collect which helps to quantify the performance impacts of Vektron 3000 additives. In addition, the forthcoming EPA guidance on establishing protocols for the generation of emission credits should provide you with a better idea of the acceptable mechanisms for quantifying surplus emission benefits for Vektron 3000. In the meantime, if you have questions or concerns, please contact Jeff Herzog for issues related to CCD and detergent additives at (313) 668-4227 or Gary Dolce for issues related to the Open Market Trading Guidance at (313) 668-4414.

Sincerely,



Charles N. Freed

Director

Fuels and Energy Division

cc: Margo T. Oge  
Steve Gerritson  
E.J. Haury  
J. Graham  
Steve Benwell  
Alan Millard